

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims of this application:

Listing of the Claims:

1. (Currently amended) A method of providing Global Positioning System (GPS) time assistance to a mobile station comprising:

transmitting a message from a networked GPS time server to a mobile station, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station, wherein transmitting is preceded by:

accessing GPS referenced time from the networked GPS time server responsive to the request to provide a first GPS referenced time at the networked GPS time server when the message was received; and

accessing GPS referenced time from the networked GPS time server responsive to the request to provide a second GPS referenced time at the networked GPS time server when the message is transmitted.

2. (Original) A method according to Claim 1 wherein the message comprises an Internet Control Message Protocol message.

3. (Original) A method according to Claim 1 wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message.

4. (Original) A method according to Claim 3 wherein the GPS referenced time information further comprises:

a mobile station referenced request time at which the mobile station transmitted the request to the networked GPS time server.

5. (Original) A method according to Claim 4 wherein the message comprises a single ICMP message including the first and second GPS referenced times and the mobile station request time.

6. (Original) A method according to Claim 4 further comprising:
receiving the message at the mobile station at a mobile station referenced reception time at which the mobile station received the message from the networked GPS time server;
determining a delay associated with propagation of the message from the networked GPS time server to the mobile station based on the mobile station referenced reception time and the mobile station referenced request time; and
determining a mobile station GPS time based on the second GPS referenced time at which the networked GPS time server transmitted the message and the delay.

7. (Original) A method according to Claim 6 wherein determining the delay further comprises:

determining the delay based on the mobile station referenced reception time, the mobile station referenced request time, and the first and second GPS referenced times.

Claim 8. (Canceled).

9. (Original) A method of providing Global Positioning System (GPS) time assistance to a mobile station comprising:
transmitting a request for GPS time assistance information from a mobile station to a networked GPS time server at a first mobile station referenced time;
receiving the request for GPS time assistance information at the networked GPS time server at a first GPS referenced time;

transmitting a single ICMP message from the networked GPS time server to the mobile station at a second GPS referenced time, the single ICMP message including at least the first and second GPS referenced times;

receiving the single ICMP message at the mobile station at a second mobile station referenced time; and

determining a current GPS referenced time at the mobile station based on the first and second GPS referenced times and the first and second mobile station referenced times.

10. (Original) A method according to Claim 9 wherein transmitting the single ICMP message further comprises:

transmitting the single ICMP message including the first mobile station referenced time.

11. (Original) A method according to Claim 9 wherein the first and second GPS referenced times indicate an elapsed GPS referenced time interval at the networked GPS time server between receiving the request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station.

12. (Original) A method according to Claim 9 wherein the determining further comprising:

determining a delay associated with propagation of the message from the networked GPS time server to the mobile station based on a difference between the first and second mobile station referenced times; and

determining a current GPS referenced time based on the second GPS referenced time at which the networked GPS time server transmitted the message and the delay associated with propagation of the message.

13. (Original) A computer-readable medium having computer-executable instructions for performing the steps recited in Claim 9.

Claims 14-20 (Canceled)

21. (Currently amended) A networked server for providing Global Positioning System (GPS) time assistance comprising:

a networked GPS time server circuit configured to transmit a message to a mobile station via a network, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server circuit between receiving a request for GPS time assistance at the networked GPS time server circuit and transmitting the message to the mobile station, wherein the networked GPS time server is configured to provide GPS referenced time responsive to the request to provide a first GPS referenced time at the networked GPS time server when the message is received and is configured to provide GPS referenced time responsive to the request to provide a second GPS referenced time at the networked GPS time server when the message is transmitted.

22. (Original) A networked server according to Claim 21 wherein the message comprises an Internet Control Message Protocol (ICMP) message.

23. (Original) A networked server according to Claim 21 wherein the request for GPS time assistance comprises an ICMP time request message and the message comprises an ICMP time response message.

24. (Currently amended) A networked server according to Claim 22 A networked server for providing Global Positioning System (GPS) time assistance comprising:

a networked GPS time server circuit configured to transmit a message to a mobile station via a network, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server circuit between receiving a request for GPS time assistance at the networked GPS time server circuit and transmitting the message to the mobile station, wherein the message comprises an Internet Control Message Protocol (ICMP) message, and

wherein GPS referenced time information comprises GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone.

25. (Original) A networked server according to Claim 24 wherein the GPS referenced time information further comprises:

GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

26. (Original) A networked server according to Claim 25 wherein the GPS referenced time information further comprises:

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.

27. (Currently amended) ~~A networked server according to Claim 22 A networked server for providing Global Positioning System (GPS) time assistance comprising:~~

a networked GPS time server circuit configured to transmit a message to a mobile station via a network, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server circuit between receiving a request for GPS time assistance at the networked GPS time server circuit and transmitting the message to the mobile station, wherein the message comprises an Internet Control Message Protocol (ICMP) message, and
wherein the GPS referenced time information comprises:

GPS Time-Of-Week (TOW) information; and
four bits of GPS sub-frame information indicating a word position within a frame of the GPS TOW information;

five bits of GPS data bit count information indicating a bit position within the GPS sub-frame information; and

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information.

28. (Original) A networked server according to Claim 27 wherein the GPS TOW information is separated into at least two ICMP messages, or excludes at least some of the most significant bits of the GPS TOW information.

29. (Original) A networked server according to Claim 27 wherein the coarse acquisition code information comprises between one and five bits inclusive.

30. (Original) A networked server according to Claim 22 wherein the ICMP message comprises a ping message.

31. (Previously presented) A networked server for providing Global Positioning System (GPS) time assistance comprising:

a GPS time source configured to provide GPS referenced time information comprising GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone; and

an IP stack including an ICMP compliant protocol layer configured to request GPS referenced time information from the GPS time source responsive to ICMP time stamp request messages and configured to transmit ICMP time reply messages including the GPS referenced time information.

32. (Original) A networked server according to Claim 31 wherein the GPS referenced time information comprises:

a first GPS referenced time associated with when the ICMP time request message was received by the networked server; and

a second GPS referenced time associated with when the ICMP time replay message is transmitted by the networked server.

33. (Original) A networked server according to Claim 31 further comprising:

an application layer of the IP stack; and
an application configured to receive the GPS time assistance requests from mobile stations and configured to provide GPS time assistance information in response thereto, wherein the application is configured to access the ICMP compliant protocol layer through the application layer of the IP stack.

34. (Original) A networked server according to Claim 31 further comprising:

a GPS time source switch coupled between the IP stack and the GPS time source, wherein the GPS time source switch is configured to direct requests for GPS referenced time information to the GPS time source and direct GPS referenced time information from the GPS time source to the IP stack and configured to direct requests for server time information to a server time source and direct server referenced time information from the server time source to the IP stack.

Claim 35 (Canceled).

36. (Previously presented) A networked server according to Claim 31 wherein the GPS referenced time information further comprises:

GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

37. (Original) A networked server according to Claim 36 wherein the GPS referenced time information further comprises:

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.

38. (Original) A computer-readable medium having computer-executable instructions for implementing the networked server recited in Claim 31.

39. (Currently amended) A GPS enabled mobile station comprising:
a processor circuit configured to determine current GPS referenced time at a mobile station derived from a single message from a networked GPS time server, the single message including GPS referenced time information and delay information associated with propagation of the message to the mobile station wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message, wherein the GPS referenced time information comprises GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone.

40. (Original) A GPS enabled mobile station according to Claim 39 wherein the message comprises an Internet Control Message Protocol message.

Claim 41 (Canceled).

42. (Original) A computer-readable medium having computer-executable instructions for performing the steps recited in Claim 39.

Claim 43 (Canceled).

44. (Original) A GPS enabled mobile station according to Claim 39
wherein the GPS referenced time information further comprises:
GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

45. (Original) A GPS enabled mobile station according to Claim 44
wherein the GPS referenced time information further comprises:
coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.